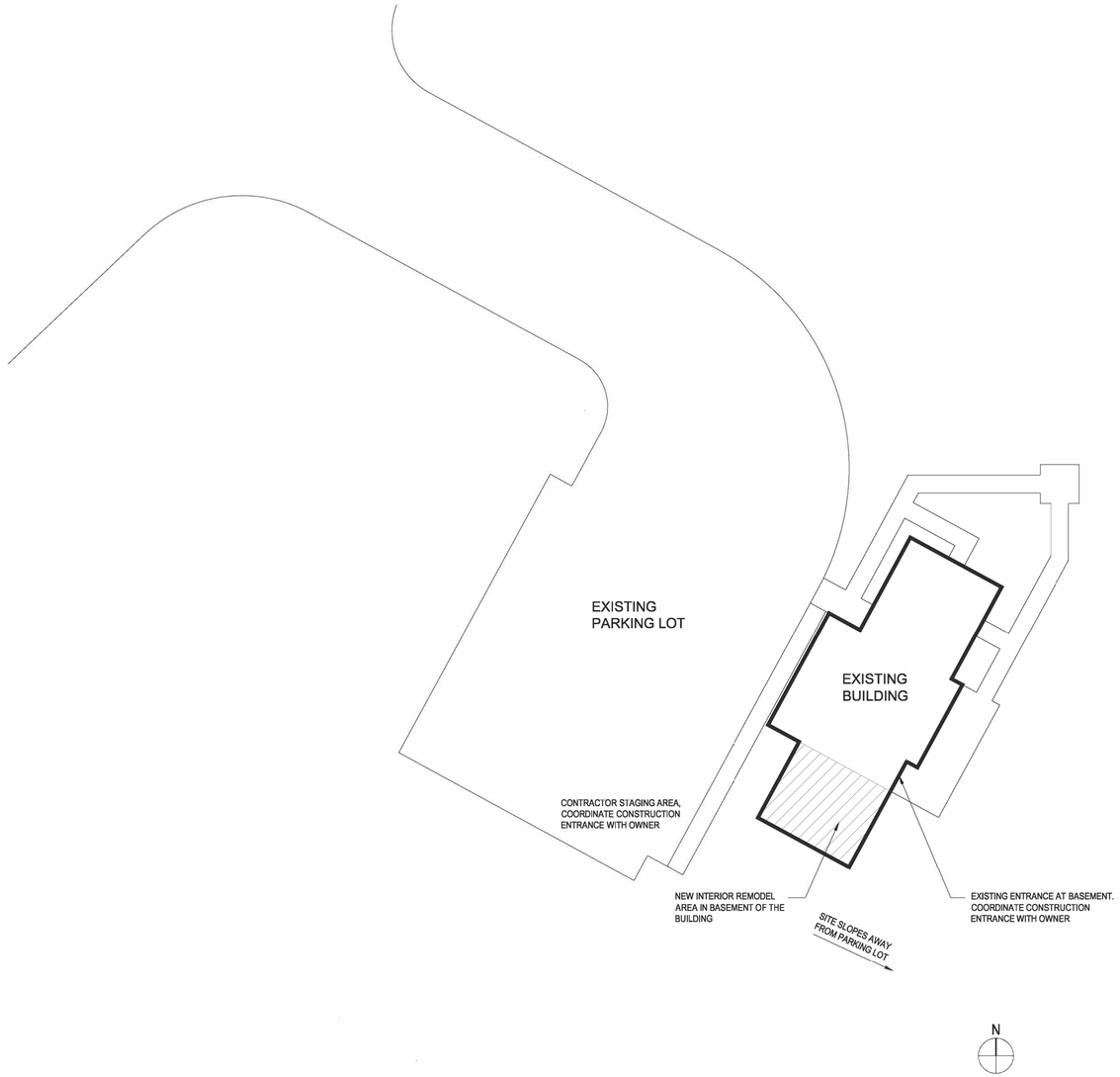

2 SITE PLAN
SCALE = 1" = 20'-0"

SITE NOTES:

EXISTING ENTRANCE AT BASEMENT. COORDINATE CONSTRUCTION ENTRANCE WITH OWNER.

CONTRACTOR TO TAKE CARE ACCESSING BASEMENT CONTRACTOR CAN ACCESS BASEMENT BY GOING DOWN THE SLOPED SITE. CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE TO GROUNDS WHILE ACCESSING THE CONSTRUCTION SITE.

410 Central Ave
GREAT FALLS, MT 59401
T: 406.453.0001
F: 406.760.1788
SPARK-ARCHITECTURE.COM

LICENSED ARCHITECT
SOPHIA A. SPARKLIN
3345
GREAT FALLS, MT
STATE OF MONTANA

CMR WILDLIFE CENTER
MEETING ROOM REMODEL

333 AIRPORT RD
LEWISTOWN, MT 59457

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SITE PLAN

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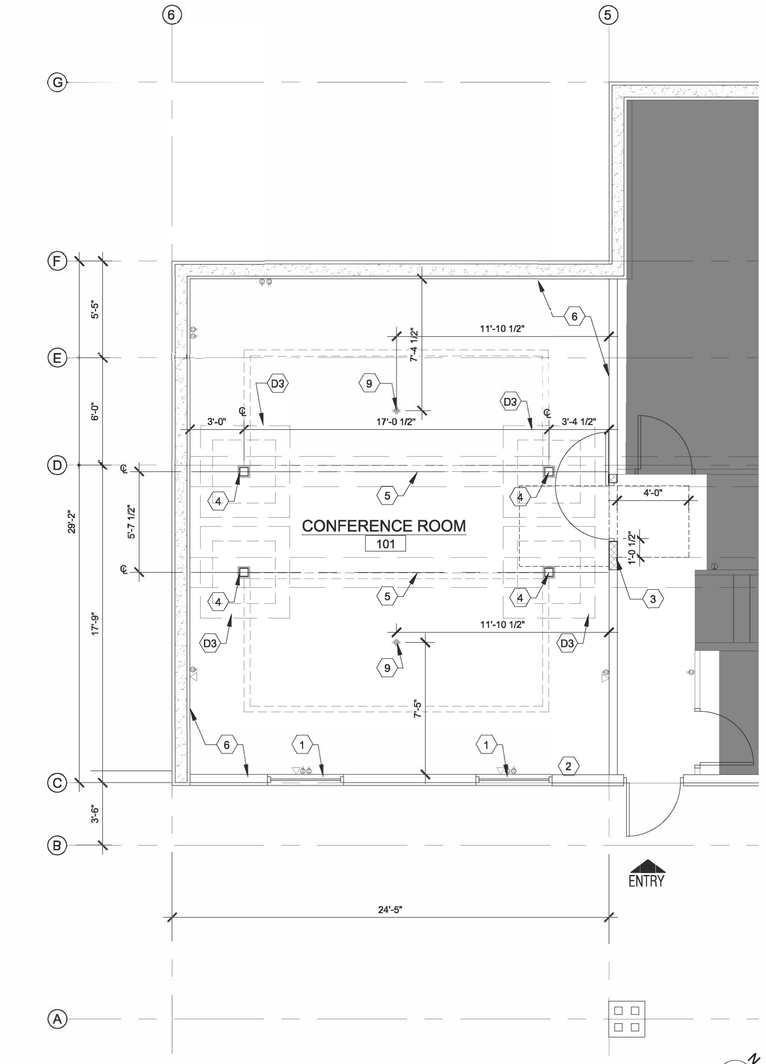
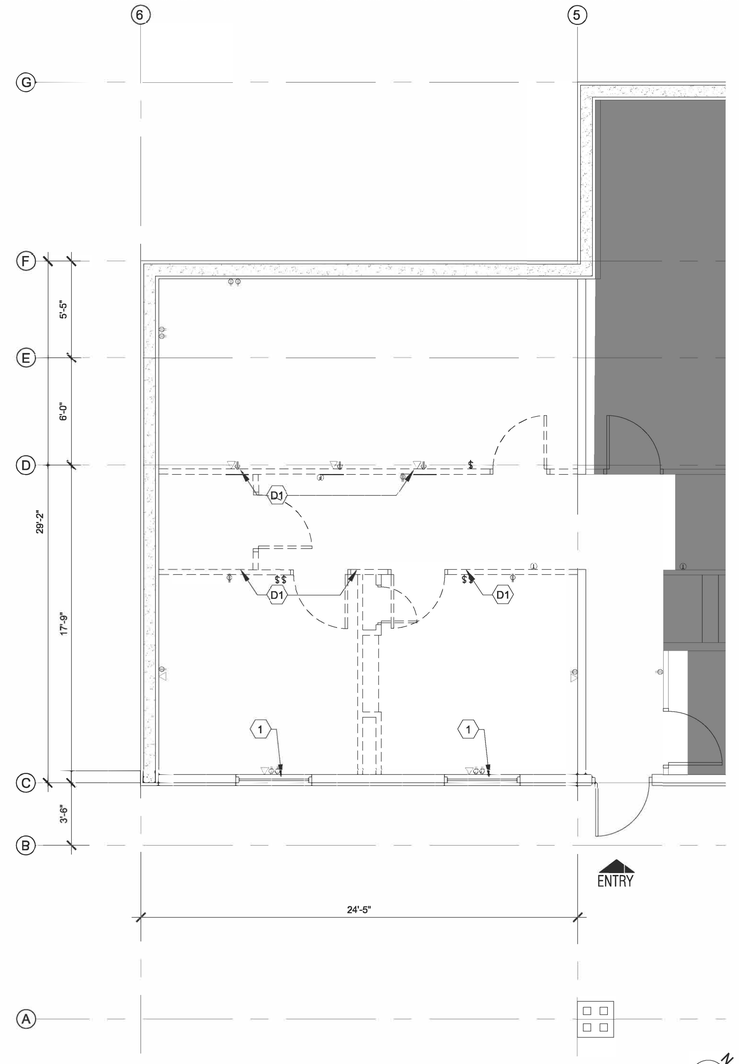
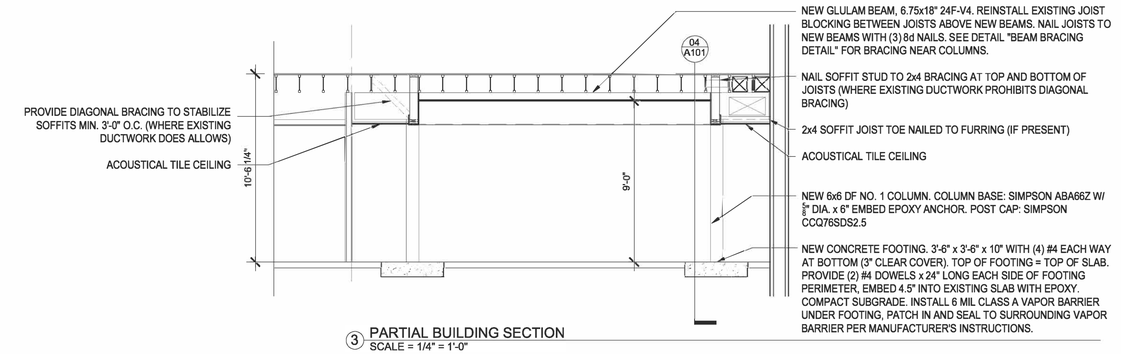


② FLOOR PLAN
SCALE = 1/4" = 1'-0"



① DEMOLITION - FLOOR PLAN
SCALE = 1/4" = 1'-0"



③ PARTIAL BUILDING SECTION
SCALE = 1/4" = 1'-0"

GENERAL NOTES

1) ALL DIMENSIONS FROM AN EXISTING WALL ARE TO FACE OF EXISTING WALL FINISH.
2) ALL DIMENSIONS FROM NEW WALLS ARE TO FACE OF STUD.
3) REPORT ANY DISCREPANCIES WITH WHAT EXISTS ON SITE AND DRAWINGS TO ARCHITECT.
4) GENERAL CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS OF THE EXISTING BUILDING.
5) SEAL OPENINGS IN FLOOR AROUND DUCTS, PIPES, VENTS, SOIL-PIPES, TRAPS, CONDUITS, ETC.
6) SEAL NEW PENETRATIONS THROUGH THE WALLS, CEILING AND ROOF.
7) WHEN DUCT WORK PIPES AND MECHANICAL UNITS ARE EXPOSED IN PAINTED ROOMS, THEY WILL BE PAINTED AS DIRECTED BY ARCHITECT OR INTERIOR DESIGNER.

DEMOLITION KEYNOTES (DX)

D1) DEMOLISH EXISTING INTERIOR WALLS
D2) NOT USED
D3) DEMOLISH CONCRETE FLOOR AROUND COLUMNS SEE STRUCTURAL DRAWINGS

NEW KEYNOTES (X)

1) EXISTING WINDOW TO REMAIN
2) NEW INTERIOR DOOR MATCH FINISH OF EXISTING DOORS TO REMAIN
3) NEW 2x4 WOOD STUD WALL
4) NEW 6x6 DF NO. 1 COLUMN. COLUMN BASE: SIMPSON ABA66Z W/ 5/8" DIA. x 6" EMBED EPOXY ANCHOR. POST CAP: SIMPSON CCQ76SDS2.5W 6x6 WOOD COLUMN
5) NEW GLULAM BEAM, 6.75x18" 24F-V4. REINSTALL EXISTING JOIST BLOCKING BETWEEN JOISTS ABOVE NEW BEAMS. NAIL JOISTS TO NEW BEAMS WITH (3) 8d NAILS. SEE DETAIL "BEAM BRACING DETAIL" FOR BRACING NEAR COLUMNS.
6) PAINT ALL WALLS MATCH
7) NEW 2x8 WOOD STUD WALL
8) NEW CONCRETE FOOTING. 3'-6" x 3'-6" x 10" WITH (4) #4 EACH WAY AT BOTTOM (3" CLEAR COVER). TOP OF FOOTING = TOP OF SLAB. PROVIDE (2) #4 DOWELS x 24" LONG EACH SIDE OF FOOTING PERIMETER, EMBED 4.5" INTO EXISTING SLAB WITH EPOXY. COMPACT SUB-GRADE. INSTALL 6 MIL CLASS A VAPOR BARRIER UNDER FOOTING, PATCH IN AND SEAL TO SURROUNDING VAPOR BARRIER PER MANUFACTURER'S INSTRUCTIONS.
9) SAWCUT CONCRETE FLOOR INSTALL ELECTRICAL 4 PLEX UNDER CENTER OF CEILING ABOVE. PATCH AND REPAIR FLOOR AFTER SAWCUTTING. SEE ELECTRICAL DRAWINGS FOR SAWCUT LOCATIONS.

NO ARCHITECTURAL WORK THIS AREA CONTRACTOR TO REVIEW ALL DRAWINGS FOR ENTIRE EXTENTS OF WORK

FINISHES

FLOORING = CARPET - PROCRAFT
Style: Futura Ecologix ES
Color: Flying Saucer 00570
Product Type: Modular
CEILING = ACOUSTICAL TILE - ARMSTRONG
Style: Future Fissure
Color: White
Product Type: 24" x 24"
WALLS = GYPSUM BOARD - PAINTED
Color: To be selected by Architect and Owner

ELECTRICAL EQUPMENT

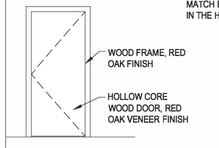
$	LIGHT SWITCH
	DUPLEX
	TELEPHONE
T	THERMASTAT
S	SMOKE DETECTOR
F	FIRE ALARM / STROBE

DOOR SCHEDULE

DOOR #	SIZE	TYPE	DR MAT	FIN.	FRM MAT	FIN.	HARDWARE	NOTES
	3'-0"x7'-0"	A	HC WD	ST	WD	PT		

DOOR NOTES:
HC = HOLLOW CORE
HM = HOLLOW METAL
PT = PAINT
ST= STAIN
STL = STEEL
WD = WOOD

DOOR HARDWARE: (MATCH EXISTING COLOR AND FINISH)
(3) HINGES EA. DOOR = 180 ° SWING MCKINNEY TA2714
PASSAGE LOCKSET= BEST 93OO
GASKETING = PEMKO GASKETING TO REDUCE NOISE



TYPE 'A'

DOOR AND FRAME, MATCH EXISTING STAIN OF DOORS IN THE HALLWAY

410 Central Ave
GREAT FALLS, MT 59401
T: 406.453.0001
F: 406.760.1788
SPARK-ARCHITECTURE.COM

LICENSED ARCHITECT
SOPHIA A. SPARKS
GREAT FALLS, MT
STATE OF MONTANA

CMR WILDLIFE CENTER
MEETING ROOM REMODEL

333 AIRPORT RD
LEWISTOWN, MT 59457

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01-2020

DEMOLITION PLAN
FLOOR PLAN

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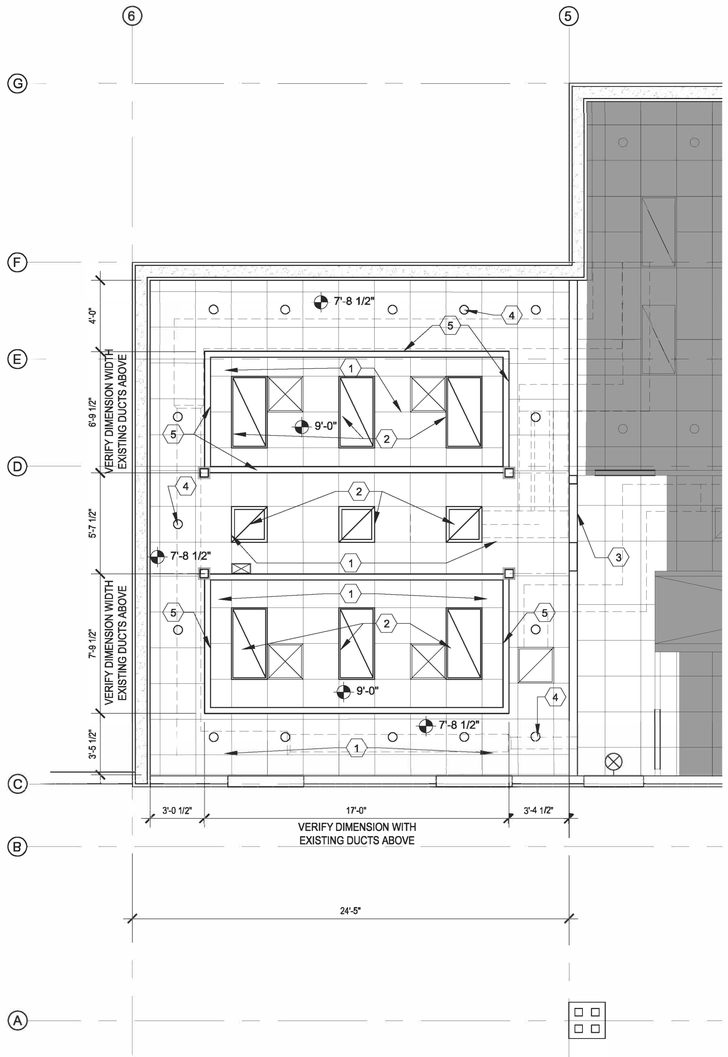
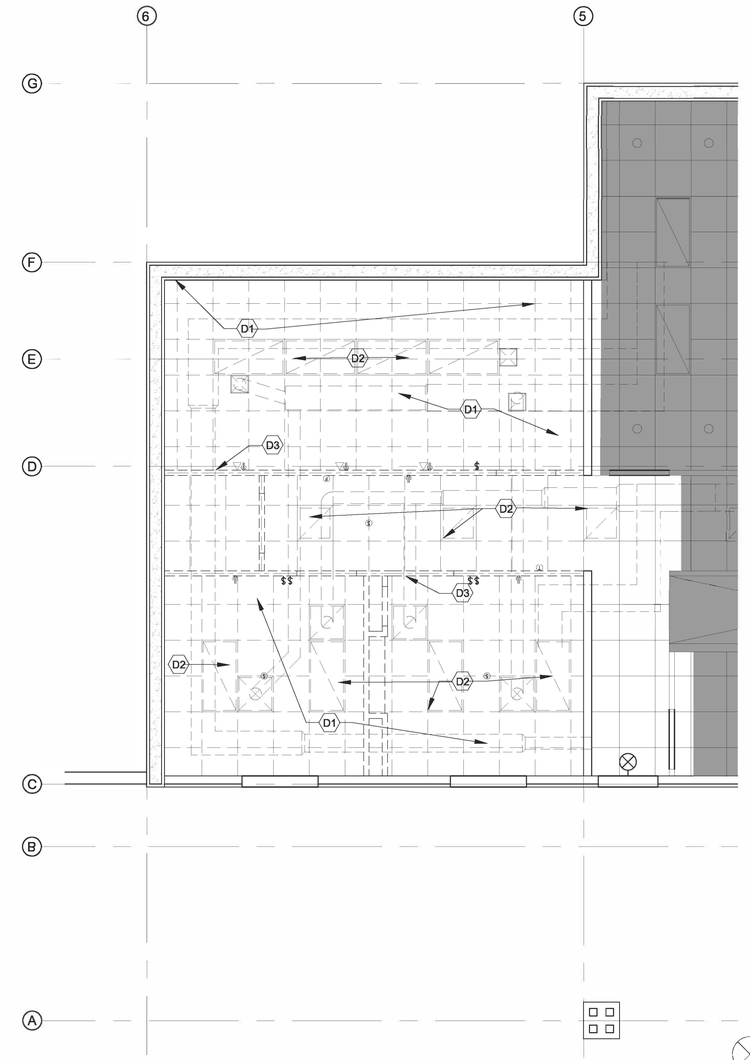
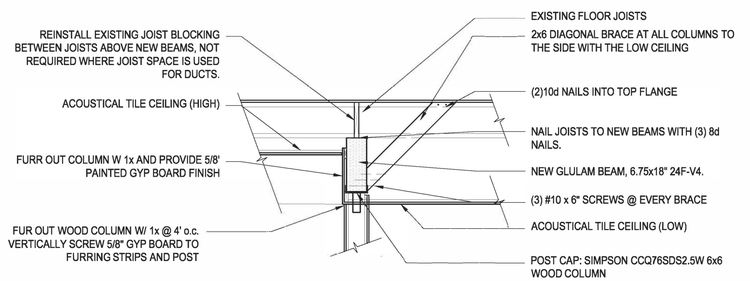


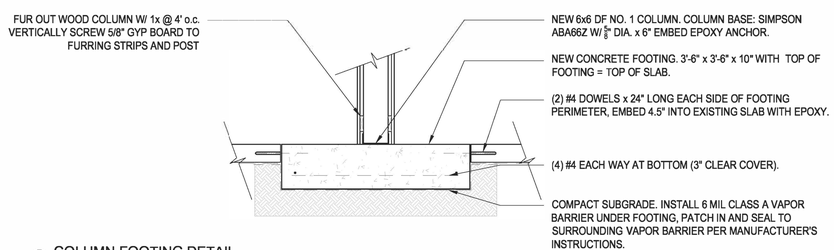
2 REFLECTED CEILING PLAN
SCALE = 1/4" = 1'-0"



1 DEMOLITION - REFLECTED CEILING PLAN
SCALE = 1/4" = 1'-0"



4 COLUMN BRACE DETAIL
SCALE = 1/2" = 1'-0"



3 COLUMN FOOTING DETAIL
SCALE = 3/4" = 1'-0"

GENERAL NOTES

1) ALL DIMENSIONS FROM AN EXISTING WALL ARE TO FACE OF EXISTING WALL FINISH.
2) ALL DIMENSIONS FROM NEW WALLS ARE TO FACE OF STUD.
3) REPORT ANY DISCREPANCIES WITH WHAT EXISTS ON SITE AND DRAWINGS TO ARCHITECT.
4) GENERAL CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS OF THE EXISTING BUILDING.
5) SEAL OPENINGS IN FLOOR AROUND DUCTS, PIPES, VENTS, SOIL-PIPES, TRAPS, CONDUITS, ETC.
6) SEAL NEW PENETRATIONS THROUGH THE WALLS, CEILING AND ROOF.
7) WHEN DUCT WORK PIPES AND MECHANICAL UNITS ARE EXPOSED IN PAINTED ROOMS, THEY WILL BE PAINTED AS DIRECTED BY ARCHITECT OR INTERIOR DESIGNER.
8) THE ARCHITECTURAL REFLECTED CEILING PLAN SHALL GOVERN THE LAYOUT OF ALL CEILING ELEMENTS AND/OR PENETRATIONS. IF APPLICABLE, COORDINATE ANY FIELD VERIFIED OR AS-BUILT CONDITIONS THAT DIFFER FROM WHAT IS SHOWN ON THESE PLANS WITH THE ARCHITECT.
9) SIZES OF MECHANICAL EQUIPMENT (IF SHOWN) ARE FOR REFERENCE ONLY UNLESS NOTED OTHERWISE. IF APPLICABLE, COORDINATE ACTUAL SIZES WITH THE MECHANICAL ENGINEER.
10) SIZES AND SHAPES OF LIGHTING AND OTHER MISCELLANEOUS ELECTRICAL EQUIPMENT (IF SHOWN) ARE FOR REFERENCE ONLY UNLESS NOTED OTHERWISE. IF APPLICABLE, COORDINATE ACTUAL SIZES WITH THE ELECTRICAL ENGINEER.
11) NSTALL SUSPENDED CEILING GRID WITH EQUAL SIZE PANELS AT EACH SIDE OR END OF THE INDIVIDUAL SPACES UNLESS NOTED OTHERWISE. NO PANEL SHALL BE LESS THAN 4" WIDE.ALL CEILING MOUNTED ITEMS (SPRINKLER HEADS, MOUNTING DEVICES, ETC.) SHALL BE CENTERED IN THE CEILING PANELS UNLESS NOTED OTHERWISE.
12) PATCH AND REPAIR EXISTING CEILING AS REQUIRED THAT WAS DISTURBED DURING DEMOLITION AND/OR NEW CONSTRUCTION ACTIVITIES. PATCH AND REPAIR TO MATCH EXISTING ADJACENT CONSTRUCTION, SUPPORT SYSTEM, CEILING FINISH, PATTERN AND ELEVATION.

DEMOLITION KEYNOTES (DX)

D1) DEMOLISH EXISTING ACOUSTICAL TILE CEILING.
D2) DEMOLISH EXISTING LIGHT FIXTURE
D3) EXISTING WALLS THAT PENETRATE CEILING TO BE DEMOLISHED DEMOLISH ALL ELECTRICAL AND FIRE EQUIPMENT ON THESE WALLS

NOTE: SEE MECHANICAL DRAWINGS FOR DEMOLITION OF MECHANICAL EQUIPMENT ABOVE CEILING

NEW CEILING KEYNOTES (X)

1) NEW 2x2 ACOUSTICAL TILE CEILING
2) NEW FLUORESCENT LIGHT FIXTURE PER ELECTRICAL DRAWINGS
3) NEW DOOR HEADER (2) 2x8
4) LIGHT FIXTURE PER ELECTRICAL DRAWINGS
5) NEW 2x WOOD SOFFIT W/ PAINTED GYP BOARD BRACE TO CEILING ABOVE

NO ARCHITECTURAL WORK THIS AREA CONTRACTOR TO REVIEW ALL DRAWINGS FOR ENTIRE EXTENTS OF WORK

EXISTING DUCT WORK ABOVE

SUPPLY DUCTWORK

RETURN DUCTWORK

LIGHT FIXTURES

DESCRIPTION	
DEMO 2'x4' FLUORESCENT LIGHT FIXTURE	
DEMO 2'x2' FLUORESCENT LIGHT FIXTURE	
EXISTING 2'x4' FLUORESCENT LIGHT FIXTURE TO REMAIN	
NEW 2'x4' FLUORESCENT LIGHT FIXTURE (SEE ELECTRICAL DRAWINGS FOR MANUFACTURER)	
NEW 2'x2' FLUORESCENT LIGHT FIXTURE (SEE ELECTRICAL DRAWINGS FOR MANUFACTURER)	
NEW LIGHT FIXTURE (SEE ELECTRICAL DRAWINGS FOR MANUFACTURER AND TYPE)	

410 Central Ave
GREAT FALLS, MT 59401
T: 406.453.0001
F: 406.760.1788
SPARK-ARCHITECTURE.COM

LICENSED ARCHITECT
SOPHIA A. SPARKLIN
3645
GREAT FALLS, MT
STATE OF MONTANA

CMR WILDLIFE CENTER MEETING ROOM REMODEL

333 AIRPORT RD
LEWISTOWN, MT 59457

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01-2020

CEILING PLAN
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SPECIFICATIONS

GENERAL PROVISIONS

1.00 GENERAL

A. The contractor shall provide labor, materials, equipment, items, articles, operations and methods listed, shown, scheduled, or mentioned on the drawings, and/or specified, including all incidentals required for their completion.

1.01 DESCRIPTION OF WORK

A. HVAC

1. NEW HVAC DUCT SYSTEM

1.02 MATERIALS SUBSTITUTION AND APPROVAL

A. All items in this DIVISION are eligible for substitution. Items specified by brand without "or equal", "or approved" must be provided without substitution. The final decision as to acceptability rests with the Engineer.

B. When the Engineer deems necessary, to assure satisfactory installation and capability with other equipment, piping, ductwork, electrical provisions and other appurtenances, the Contractor shall prepare scale drawings of the substitute item showing proposed location, connections, relation to the other equipment and other pertinent data such as maintenance space requirements, electrical requirements, height and weight. Drawings must be reviewed by Engineer=s before the substitution equipment is ordered.

C. Substitutions

1. It is the contractor's responsibility that the substitute item shall fit into the space allocated and that the item has the salient features and can provide capacity and function of specified equipment.

2. Should changes in the work of any contractor become necessary as a result of any substitute item under this DIVISION, such changes shall be arranged and paid for by this Contractor, regardless of approved shop drawings.

3. Shop drawings are not reviewed for physical dimensions or weight.

4. Engineers –A review of the shop drawings and literature shall not relieve Contractor from responsibility for deviations from drawings or specifications, not shall it relieve him from responsibility for errors or omissions in shop drawings or literature of salient features for specified equipment.

5. Contractors shall notify electrical contractor of changes in electrical characteristics of mech. equipment submittal.

6. Substitutions Request Form (See last page of this Section)

1.03 CODES, REGULATIONS AND PERMITS

A. All materials and equipment shall be new, approved by the governing authority, and be in new, undamaged condition when installed.

B. Comply with international building code 2012, international mechanical code 2018, NFPA 2018, uniform plumbing code 2018, 2018 international fuel gas code and all local regulations and ordinances.

C. Obtain and arrange for all perrmits and approvals required for the execution of the work.

D. ADA Compliance

1. All components installed in handicapped facilities shall comply with latest adopted ADA guidelines, Fair Housing Act, or CABO for listed occupancy.

2. Wall mounted components. Mounted at 48" AFF to top.

1.04 GUARANTY WARRANTY

A. This contractor shall and hereby does warrant and guarantee:

1. That all work executed under this DIVISION will be free from defects of materials and workmanship for a period of one year from the date of final acceptance of this work.

2. The above party further agrees he will, at his own expense, repair and replace all such defective materials and work and all other work damaged thereby which becomes defective during the term of warranty.

1.05 FREEZE PROTECTION

A. Contractor to verify Drawing Dimension Scales with Arch. Drawings

B. Contractor to verify with Engineer where multiple and differing scales occur on same drawing sheet.

1.06 ACCESS DOORS

A. Where access is restricted for service or maintenance, provide access to valves, controls, dampers, equipment, ect., using Milcor Type 'K', 'L', or 'M' doors. Sizes and numbers sufficient to provide proper access to item for service. Doors to have UL label when installed in fire partitions and rated ceilings. Coordinate with architecture plans for locations of non–accessible ceiling types and inconspicuous wall locations. Verify with general contractor size of access doors to mechanical equipment, spaces such as attics and crawlspaces, ensure removal of equipment. Provide full radius access for hinged equipment access doors.

1.07 RESPONSIBILITY

A. The Contractor is responsible for installation of satisfactory and complete piece of work in accordance with true intent of drawings and specifications.

B. Consult all drawings for project to predetermine that work and equipment will fit as planned with adequate clearance for service and replacement.

C. Location of piping, ducts, equipment, ect., checked to determine it clears openings, structural members, cabinets, lights, outlets and equipments having fixed locations. Check–out done prior to fabrication of pipe or ducts.

D. If, at any time, changes in location of piping, ducts, equipment, ect., becomes necessary due to obstacles or installation of other trades shown on any of the project drawings, will be made by the Contractor at extra cost.

MECHANICAL SYSTEMS INSULATION

2.01 MATERIALS

A. Equivalent products of Certain–Teed and Owens–Corning. Thickness shall comply with IECC 2012.

B. Owens–Corning descriptions used throughout. All products used shall be UL rated with a maximum flame spread of 25 and maximum smoke develop of 50.

C. Duct Insulation

1. Refer to legend on drawings for type used.

2. Interior acoustical lining – Fiberglass Aeroflex Duct Liner Type 200, 1" thick, 1–1/2 lb. density, black coated, for up to 2000 FPM velocity. Used where so indicated on the drawings by symbol (see legend) or with sheet metal duct as an option for Fiberglass Duct System.

3. Exterior Duct

a. Concealed and Round – Fiberglass type FRK25, series ED–75 foil–faced – 2 inch thick.

b. Exposed – Fiberglass type 25ASJ, 2 inch thick vinyl face.

3.01 INSTALLATION

A. Insulation installed by trained insulating crews.

B. Installed in strict accord with manufacturer's recommendations and guide specifications.

C. The appearance of the finished work shall be of equal importance with its mechanical correctness.

D. Vapor barrier jackets on all cold temperature pipe shall be continuous with punctures, flaps, etc., repaired correctly and effectively.

E. Duct Insulation

1. Duct Liner – Secure insulation to inside of duct with 100% coverage of fire–resistant insulation bonding adhesive. Adhesive to completely cover metal at upstream end of each section. Top and bottom pieces to lap side pieces. Further secure the liner with mechanical fasteners on 12" centers. Applied to withstand 2000 FPM velocity.

AIR–HANDLING EQUIPMENT

2.01 MATERIALS

A. Refer to schedules for size, type, etc. Units complete in all respects.

B. Exhaust Fans

1. Products of Penn, Carnes, Greenheck, or equal are acceptable.

2. Ceiling exhaust fan shall be provided with backdraft dampers and electrical disconnect switches mounted in the housing.

3. Substitute units to be of same type, class, size, etc., of specified unit. Cfm and rpm at rated static pressure shall be within 10% of the specified unit. Noise level ratings shall be comparable to that of the specified unit.

4. Plastic flex duct on fan discharge not approved. Sheet metal duct only.

WARM AIR FURNACES

2.01 MATERIALS

A. Furnace 93% efficiency products as noted on the drawings, or as approved.

1. Complete in all respects, including controls and thermostats, filters and frame. Substitute furnace unit efficiency to be within plus or minus 3 percent of specified unit.

2. Wiring diagram – The unit manufacturer shall prepare a complete wiring diagram showing connections, color coding, low–voltage and line–voltage wiring to all components. This drawing to be on one sheet (it shall not be pieces of standard drawings, each concerned only with the one piece of equipment). The drawing to be for this specific job, with specified thermostat shown and specified starters and relays, where used, shown. This drawing submitted with equipment literature and shall be corrected until approved by the A/E.

3. All filters to have frames.

4. All air handling units 2000 CFM and larger shall have a smoke detector in RA stream to shutdown fan provided by temperature control contractor.

B. Flue

1. Vent system as defined by NFPA and listed by UL. Vent in accordance with manufacturer recommendations.

2 Provide complete with cleanout supports, spacing plate, roof flashing, storm collar and rain cap as required.

C. Refrigerant Piping

1. Pipe – Type L hard temper copper refrigerant tubing prepared at the factory for refrigerant use.

2. Fittings – wrought copper, ASA Specification No. A40–3 soldered with silver solder.

3. Valves, strainers, dryers, sight glasses, etc.: Alco, Henry, Sporlan or approved equal.

D. Air Cooled Condensing Unit

1. Furnish and install a UL listed air cooled condensing unit of the type, size and capacity shown on the and capacity shown on the drawings. Manufacturer shall be as shown on the drawings, or as approved. Refrigerant shall be R–410a.

2. Housing shall be of steel, with adequate bracing so as to be rigid, vibration–free structure. Access doors shall be factory finished corrosion resistant primer and baked enamel, or hot dipped galvanized. PVC coated Hail Guard shall protect the coil.

3. Fans shall be vertical discharge propeller type with direct drive. Fans shall be resiliently mounted and have safety guard.

4. Compressors shall be scroll type, completely enclosed in an insulated cabinet, and shall be equipped with crankcase heater. Compressors shall have vibration isolating type mountings.

5. Condenser shall be constructed of copper tubes with aluminum fins mechanically bonded to the tubes. Coil shall have a working pressure rating of 400 psi.

6. Controls shall include all operating and safety controls, including high and low pressure cutouts, contractors, and thermal overload switches. Unit wiring shall incorporate a positive acting timer to prevent short cycling of compressor if power is interrupted. (Timer shall prevent compressor from restarting for approximately five minutes after shutoff.)

7. Refrigerant system shall include a filter dryer, suction and liquid line service valves with pressure taps and charging connections; sized for R410a.

8. Refrigerant line kits – where kits are available (and the application does not exceed the manufacturer's recommended length), refrigerant line kits shall be used.

9. Accessories: Provide control which shall prevent compressor from restarting for at least 4 minutes and 45 seconds after shutdown of the thermostat.

10. Mounting Base: Provide mounting base for use as permanent foundation for the condensing unit. Base shall be constructed as detailed.

3.01 INSTALLATION

A. Installed as noted and shown on the drawings in strict accord with the manufacturer's instructions, printed and verbal.

B. Units completely serviced such as lubrication, belt adjustment, filters, controls, etc., before acceptance.

C. Pipe

1. Condensate drain pan and secondary drain piped to floor drains by Plumber.

D. Flue and Smokepipe

1. Installed in strict accord with NFPA, in particular with regard to clearance of combustible material.

E. Refrigerant Piping

1. Piping shall be generally installed, sized, etcl, as recommended in the unit manufacturer's published installation instructions. These booklets will be used by the A/E to determine compliance with these specifications.

2. Care shall be taken that all piping is clean before and after assembly.

3. The compressors shall not be used for evacuating the system. A separate vacuum pump shall be used and shall evacuate system to appropriately 29 inches vacuum. After system is free from moisture and leaks, charge with refrigerant.

4. Each system protected with strainers, dryers and moisture indicators.

F. All duct connections to equipment made with flexible duct connectors.

G. Heat Condensate–

a. Provide factory condensate drain to floor drain point of discharge. Secondary drain not required on units with built in safety shut off.

b. where required, provide secondary drain pan constructed galv sheet metal 1–1/2" high and 1–1/2" wider than unit on all side, Pipe to floor drain or other conspicuous location to indicate service required.
or
Install moisture sensor unit in base of furnace, to shut down unit sensing moisture.

H. COOLING COIL CONDENSATE

a. Pipe coil condensate drain to floor, discharge as indicated on plans, min. 3/4".

b. Factory secondary coil drain shall be piped independent of primary drain and shall discharge to a conscious location to indicate service required.

c. Provide trap as recommended by equip. manufacturer.

3.02 TESTING, BALANCING AND CLEANING

A. Testing

1. Units to be observed in normal system operation after all balancing is complete. Any excessive noise indicating loose belts, bad bearings, etc., to be corrected.

B. Balancing

1. Unit balancing to be done in conjunction with air distribution system balancing.

2. Contractor to provide drive changes or replacement as necessary to balance units to air volumes and S.P. required.

C. Cleaning

1. Clean all equipment inside and out.

2. Units with clean filters at time of acceptance.

AIR DISTRIBUTION DUCT SYSTEM

2.01 MATERIALS

A. Low–Pressure Ducts

1. Sheet Metal Ducts

a. Constructed of galvanized sheet steel and in accord with SMACNA Manual "Low Velocity and Duct Construction Standards" or the latest edition of the "ASHRAE Guide and Data Book" for gauges, bracing, seams, cross–breaking, construction, etc.

2. Acoustically–Lined Ducts

a. Acoustically–lined ducts shall be sheet metal as specified, lined with acoustical insulation as specified in Section 15160–MECHANICAL SYSTEMS INSULATION.

b. Dimensions of acoustically–lined ducts shall be increased to compensate for lining thickness. Duct dimensions on drawings are clear inside dimensions.

c. Fiberglass duct system shall not be used for ducts designated on the drawings as acoustically lined.

d. All outdoor air supply ducts shall be acoustically lined.

3. Duct Accessories

a. Equivalent products of Elgen, Young, Duro–Dyne or Ventfabrics are acceptable.

b. Duct turning vanes – Elgen double–vane runners, Code EVR–1 or 3.

c. Flexible connections – Ventfabric's Ventglas or as approved. Fabric width necessary to provide 4" metal–to–metal separation.

4. Flexible Acoustic Duct

a. Shall be Cody West NIL or equal.

b. Shall be in accord with NFPA 90A.

B. Grilles, Registers, Diffusers

1. Equivalent products of Carnes, Titus, Lima, Metal Aire, Krueger, or as approved.

2. All units to be furnished and installed complete with the necessary accessories such as gaskets, frames, screws, key operators, for a satisfactory installation.

3. Sizes, types and finish as noted in schedules and on drawings.

4. All units to have steel opposed blade dampers, parallel to shortest grille dimension.

5. All grilles and diffusers in T–Bar ceilings shall be centered in 2x2 or 2x4 pattern.

3.01 INSTALLATION

A. Low–Pressure Ductwork

1. Install generally in accord with the applicable SMACNA Manual or ASHRAE Guide. Adequately support with sheet metal strap, strap iron or rods as required, fastened securely to duct and building construction.

2. Joints mechanically secure and air–tight.

3. Turning vanes installed at all 90 degree elbows and elsewhere as indicated. Use Elgen, or equal, double vanes. Set in tight with back vane tangent to sides of duct, duct runners tight to sides.

4. Flex duct to be supported with 1" wide S.M. band anchored to structure.

B. Grilles, Registers, Diffusers

Set flush, level and plumb, tight to floor, wall or duct. Gasket on all grilles and registers for sealing against floor, wall, ceiling or duct.

3.02 TESTING, BALANCING AND CLEANING

A. Testing

1. Entire duct system and components to be tested and checked under actual system operating conditions.

2. All dampers checked for smoothness of operation. Repair unacceptable units to satisfaction of A/E.

B. Balancing

1. The Contractor shall balance systems to conditions set forth on drawings before final. If subsequent operation of systems indicates not being balanced, this contractor shall rebalance system to satisfaction of Engineer.

2. This shall be a combined effort involving this

3. The Contractor shall submit a report to the A/E listing the cfm for all supply air registers, diffusers, etc., and shall certify to their correctness. These cfm's may be marked on a set of drawings which show the diffusers, registers, etc. Contractor shall submit schedule of field data for all air handling equipment.

4. Motorized dampers to be marked to indicate open/closed position and rotation of shaft, slot end of shaft to line with damper blade.

C. Cleaning

1. All equipment, plenums, ducts, grilles, and registers shall be clean and free of dirt and debris on inside of all components. Cleaning methods to consist of vacuuming, washing, etc., as necessary to establish clean conditions.

TEMPERATURE CONTROLS–AC

PART 1–GENERAL

1.01 DESCRIPTION

A. Work included: Provide and install temperature control system as indicate on plans and specified herein.

PART 2–PRODUCTS

1.01 PRODUCTS

1. Thermostats:

a. SEE VAV DAMPER SECTION

2.01 MATERIALS

A. This Contractor to provide relays as required for the described operation.

B. Control Items

1. Thermostats:
a. WIRELESS THERMOSTAT SYSTEM.
b. See VAV Dampers Section.

2. Damper motors – Belimo direct coupled electronic modulating design, 24 volt. No interconnecting linkage.

C. Wiring – Mechanical Contractor is responsible for the low voltage control wiring, and he shall provide a complete wiring diagram showing field wiring and factory wiring for line voltage control wiring to Electrical Contractor.

D. VAV Zone Damper Control System shall be Trane Model or approved. All components shall be of the same system generation. System shall have variable volume control dampers with motorized bypass damper. Integrate into existing heat pump control system.

3.01 INSTALLATION

A. The installation shall be complete in all respects, including necessary incidentals to provide a system to function as outlined herein.

B. Wiring shall be in accord with DIVISION 16 – ELECTRICAL.

C. Calibration, setup, instruction.

1. Upon completion of the project the contractor shall calibrate all thermostats and validate all controllers, damper operators, relays, etc., under this section.

2. Contractor shall furnish instruction manual covering functions and operations of controls to owner's personnel.

MECHANICAL LEGEND

THERMOSTAT

SHEET METAL DUCT (SIZE, WIDTH X DEPTH)

SHEET METAL DUCT (ACOUSTICALLY LINED)

SHEET METAL DUCT (EXTERIOR INSULATION)

INSULATED FLEXIBLE DUCT (ACOUSTIC)

SPLITTER DAMPER W/AD

VOLUME DAMPER W/AD

VOLUME DAMPER LOCKING QUADRANT

RADIUS ELL

TURNING VANES IN ELL

DUCT SECTION – POSITIVE PRESSURE

DUCT SECTION – NEGATIVE PRESSURE

ROUND DUCT SECTION

90° CONICAL TAKE–OFF

DUCT TRANSITION

90° TAKE–OFF W/LEADING EDGE

DUCT DROP OR RISE

DUCT OFFSET

CEILING DIFFUSER

CEILING RETURN OR EXHAUST

NOTE DESIGNATION

MECHANICAL EQUIPMENT UNIT IDENTIFICATION

GRILLE AND REGISTER MARK

CONN. OF NEW SYSTEM TO EXISTING

Spark ARCHITECTURE
410 Central Ave
GREAT FALLS, MT 59401
T: 406.453.0001
F: 406.760.1788
SPARK-ARCHITECTURE.COM

LICENSED ENGINEER H.G. EVERSON 45588 STATE OF MONTANA

CMR WILDLIFE CENTER MEETING ROOM REMODEL

333 AIRPORT RD
LEWISTOWN, MT 59457

PHASE
Project Status

REVISIONS
1: ____
2: ____

01-2020

MECHANICAL REQUIREMENTS

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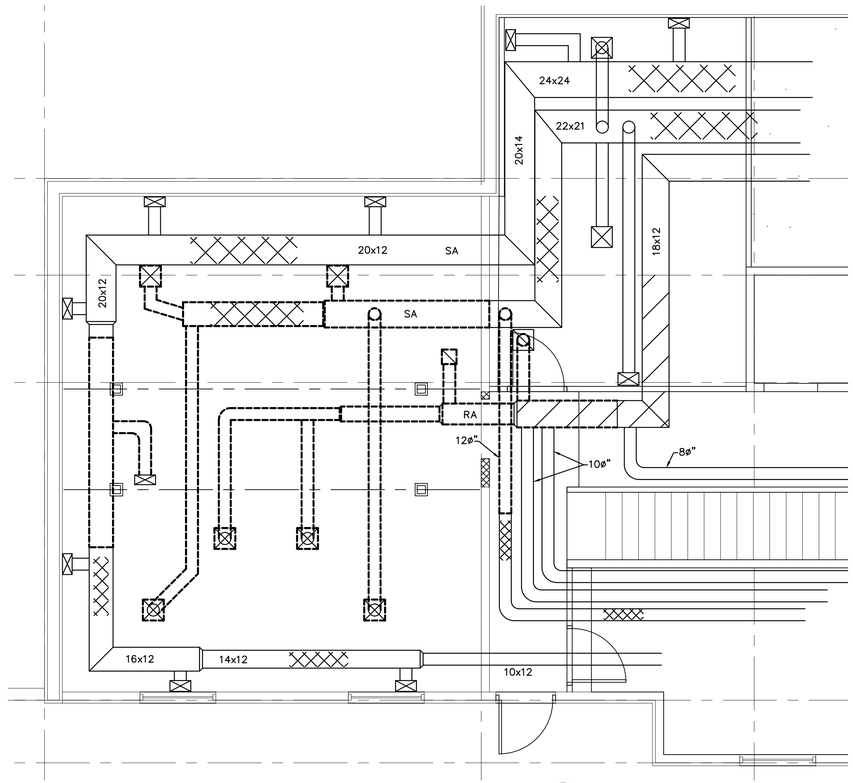
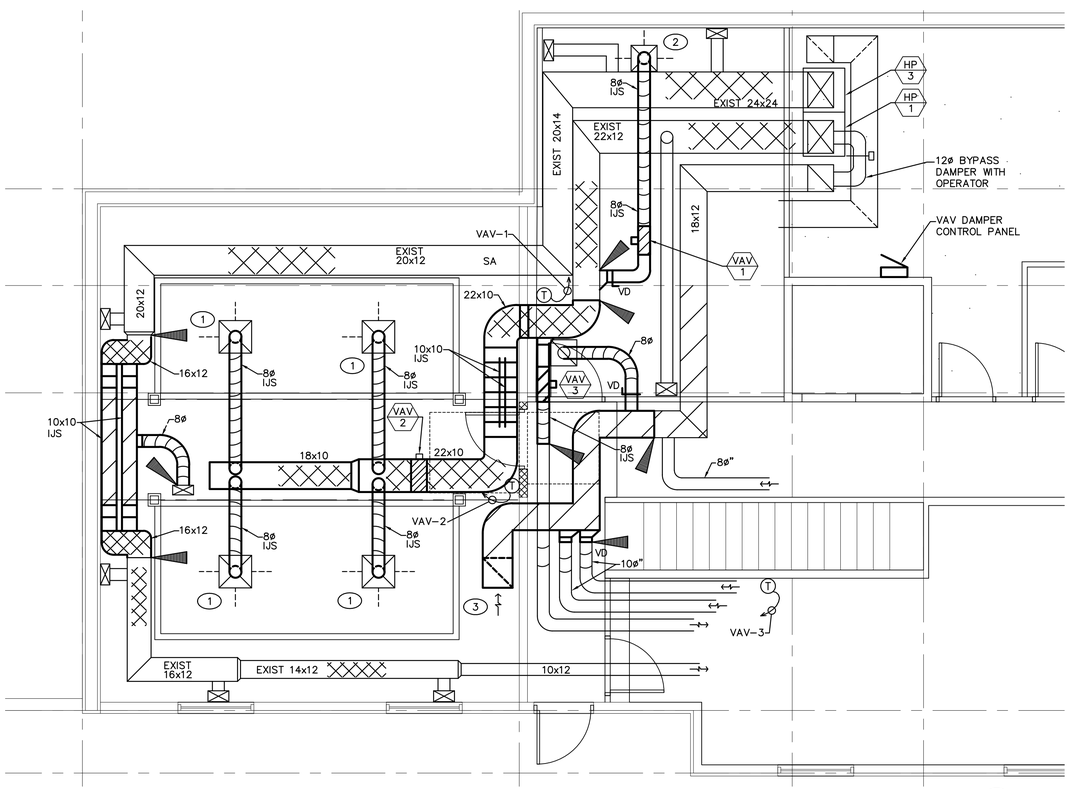


1 MECHANICAL DEMO FLOOR PLAN
SCALE = 1/4" = 1'-0"



2 REVISED HVAC PLAN
SCALE = 1/4" = 1'-0"

DEMOLITION PLAN NOTES:

REMOVE ALL SA AND RA DUCT WITH INSULATION AND ACCESSORIES.

REMOVE EXISTING DUCT RUNOUTS WITH DIFFUSERS.

SEE REVISED HVAC PLAN FOR DUCT EXTENSIONS.

GRILLES / REGISTERS / DIFFUSERS

MARK	MFGR.	CATALOG DATA					MATERIAL	FINISH	GAUGE	NOTE
		LOCATION	MODEL	FRAME	DAMP.	DEFLEC.				
SD–1	TUTTLE–BAILEY	CLG	SQD	LT	INCL	1,2,3, 4 WAY	STEEL	OFF WHITE	–	
RG–1	TUTTLE–BAILEY	CLG	CRE500	LT	INCL	–	STEEL	OFF WHITE	–	

VOLUME DAMPERS – ALL STEEL OPPOSED BLADE DESIGN, PARALLEL TO SHORTEST DIMENSION OF GRILLE.

FRONT BLADE FOR SA GRILLES TO RUN PARALLEL TO LONG DIMENSION.

DIFFUSER & GRILLE LEGEND

MARK ⬭	SIZE	TYPE	DISTRI.	CFM
1	8x8	SD–1	4 WAY	178
2	10x10	SD–1	1 WAY	340
3	18x18	RG–1	–	712
4	EXIST	RG	–	340

* RETURN AIR TO MATCH SUPPLY AIR CFM.

VAV DAMPER SCHEDULE

MARK ⬭	CFM	VEL.	SIZE	NOTE
VAV–1	340	1000	8"ø	⟨1⟩
VAV–2	714	1000	14x8	
VAV–3	485	1400	8"ø	⟨1⟩

* RETURN AIR TO MATCH SUPPLY AIR CFM.

⟨1⟩ MODEL TRANE VRRF

GENERAL NOTES:

1.) TRANE 3 WIRE 3 AMP 15 WATT 24V. 60HZ. 2–10 VOLT AC CONTROL FOR HEAT–COOL MODE. WITH DRIVE OPEN, DRIVE CLOSE, VARIABLE SPEED. SEE SPECIFICATION FOR SEQUENCE OF OPERATION.

GENERAL

CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF MECHANICAL PLANS WITH ELECTRICAL, ARCHITECTURAL AND STRUCTURAL PLANS, AND SHALL NOT RELY ON MECHANICAL PLANS ONLY FOR BID AND CONSTRUCTION PHASES. SPECIFICATIONS ARE PART OF CONTRACT DOCUMENTS AND SHALL BE INCLUDED IN ALL PHASES OF WORK.

CONTRACTOR TO COORDINATE MECHANICAL EQUIPMENT ELECTRICAL CHARACTERISTICS WITH ELECTRICAL MOTOR CONTROL SCHEDULE PRIOR TO SUBMITTAL TO A/E. INCONSISTENCIES SHALL BE NOTED.

MECHANICAL CONTRACTOR TO VERIFY POWER SUPPLY AND CONTROL DEVICES FOR MECHANICAL EQUIPMENT WITH ELECTRICAL CONNECTIONS.

CONTRACTOR TO COORDINATE AND VERIFY LOCATION OF GRILLES, REGISTERS WITH ELECTRICAL LIGHT LAYOUT.

WHEREVER DISCREPANCIES BETWEEN ARCHITECTURAL AND MECHANICAL PLANS OCCUR, CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO ROUGH–IN WORK FOR DIRECTIVE ON LOCATION OF ROUGH–INS.

PIPING SCHEMATICS ARE REPRESENTATIVE ONLY AND INDICATE GENERAL PIPING LOCATIONS, RELATIONSHIPS AND SIZING.

ALL SA, RA DUCT OUTSIDE BUILDING INSULATION ENVELOPE SHALL BE INSULATED. SEE SPECIFICATIONS.

Spark
ARCHITECTURE
410 Central Ave
GREAT FALLS, MT 59401
T: 406.453.0001
F: 406.760.1788
SPARK-ARCHITECTURE.COM

LICENSED ENGINEER H.O. EVERSON 4268 STATE OF MONTANA

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MEETING ROOM REMODEL

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HVAC PLANS

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BASIC ELECTRICAL REQUIREMENTS

SUMMARY OF WORK:
FURNISH ALL LABOR AND MATERIALS AND PERFORM ALL OPERATIONS NECESSARY FOR THE INSTALLATION OF COMPLETE AND OPERATING ELECTRICAL SYSTEMS SUBJECT TO THE CONDITIONS OF THE CONTRACT. PROVIDE SATISFACTORY OPERATION OF ALL EQUIPMENT AND CONTROLS TO THE ARCHITECT/ENGINEER UPON REQUEST.

EXAMINATION OF SITE:
VISIT THE SITE BEFORE SUBMITTING BID AS NO EXTRAS WILL BE ALLOWED FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

COORDINATION:
COORDINATE AND ORDER THE PROGRESS OF WORK TO CONFORM TO THE OWNER'S SCHEDULE AND THE PROGRESS OF THE WORK OF THE OTHER TRADES. SCHEDULE PLAN WORK SO THAT THE DURATION OF THE INTERRUPTIONS ARE KEPT TO A MINIMUM. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND BECAUSE OF THE SMALL SCALE, IT IS NOT POSSIBLE TO INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. VERIFY ALL SPACE REQUIREMENTS, COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.

VERIFY ALL EQUIPMENT IS READY FOR ELECTRICAL CONNECTIONS. COORDINATE ALL ELECTRICAL CONNECTIONS WITH THE START-UP OF THE EQUIPMENT.

THE CONTRACTOR SHALL PLAN HIS WORK TO PROCEED WITH MINIMUM INTERFERENCE WITH OTHER TRADES AND IT SHALL BE HIS RESPONSIBILITY TO INFORM THE GENERAL CONTRACTOR OF ALL OPENINGS REQUIRED IN THE BUILDING STRUCTURE FOR INSTALLATION OF WORK, AND TO PROVIDE SLEEVES, AS REQUIRED.

QUALITY ASSURANCE:
PERFORM WORK IN ACCORDANCE WITH GOOD COMMERCIAL PRACTICE. PERFORM WORK IN ACCCORDANCE WITH ALL APPLICABLE STATE AND LOCAL STANDARDS. THE QUALITY APPEARANCE OF THE FINISHED WORK SHALL BE OF EQUAL IMPORTANCE WITH ITS ELECTRICAL EFFICIENCY. THE ARCHITECT/ENGINEER MAY REJECT WORK IF WORKMANSHIP AND APPEARANCE ARE NOT SATISFACTORY. INSTALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS, UNLESS SPECIFICALLY INDICATED OTHERWISE, OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

REGULATORY AND CODE REQUIREMENTS:
APPLY FOR AND PAY FOR ALL PERMITS, FEES, LICENSES AND INSPECTIONS FOR THE DIVISION OF WORK. COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AND ORDINANCES. COMPLY WITH REQUIREMENTS OF THE UTILITY COMPANIES. IN THE CASE OF DIFFERENCES BETWEEN THESE REQUIREMENTS AND ORDINANCES, THE MOST STRINGENT SHALL GOVERN. CALL FOR INSPECTIONS REQUIRED BY LOCAL BUILDING INSPECTION AUTHORITY.

WORK SHALL MEET THE REQUIREMENTS OF THE PLANS AND SHALL MEET NO LESS THAN THE MINIMUM REQUIREMENTS AND LATEST CODES AND STANDARDS OF THE FOLLOWING: ANSI, NEC, NEMA, NFPA, OSHA, UL, UBC, LOCAL FIRE MARSHAL, AND SERVING UTILITIES.

PLANS AND SPECIFICATIONS GO HAND IN HAND. WHAT IS REQUIRED IN ONE IS REQUIRED IN BOTH. WHERE CONFLICTS BETWEEN THESE SPECIFICATIONS AND PLANS EXIST, THE MOST STRINGENT REQUIREMENTS SHALL APPLY.

RESPONSIBILITY:
BE RESPONSIBLE FOR THE INSTALLATION OF A SATISFACTORY AND COMPLETE SYSTEM IN ACCORDANCE WITH THE INTENT OF THE DRAWINGS. PROVIDE, AT NO EXTRA COST, ALL INCIDENTAL ITEMS REQUIRED FOR COMPLETION OF THE WORK, EVEN THOUGH THEY ARE NOT SPECIFICALLY MENTIONED OR INDICATED ON THE DRAWINGS.

AT ALL TIMES DURING THE PERFORMANCE OF THE CONTRACTOR, PROPERLY PROTECT WORK FROM DAMAGE AND PROTECT THE OWNER'S PROPERTY FROM INJURY OR LOSS. MAKE GOOD ANY DAMAGE, INJURY, OR LOSS, EXCEPT SUCH AS MAY BE DIRECTLY DUE TO THE ERRORS IN THE PROPOSAL DOCUMENTS OR CAUSED BY REPRESENTATIVES OF THE OWNER. ADEQUATELY PROTECT ADJACENT PROPERTY AS PROVIDED BY LAW AND THE DOCUMENTS. PROVIDE AND MAINTAIN PASSAGEWAYS, GUARD FENCES, LIGHTS, AND OTHER FACILITIES AS REQUIRED FOR PROTECTION.

WORKMANSHIP:
WORK UNDER THIS CONTRACT SHALL BE PERFORMED BY WORKMEN SKILLED IN THE PARTICULAR TRADE, INCLUDING WORK NECESSARY TO PROPERLY COMPLETE THE INSTALLATION IN A WORKMANLIKE MANNER TO PRESENT A NEAT AND FINISHED APPEARANCE.

SHOP DRAWINGS:
SUBMIT SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT SHOWING ANY CHANGES REQUIRED IN DISTRIBUTION BOARDS, PANELBOARDS, LIGHT FIXTURES, ELECTRICAL WIRING, SPACE ALLOCATION, ETC.

PROVIDE PRODUCT DATA WITH MANUFACTURER'S CATALOG INFORMATION SHOWING RATINGS, DIMENSIONS, CONFIGURATIONS AND CONSTRUCTION. ALSO PROVIDE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

PROJECT RECORD DRAWINGS:
AT COMPLETION OF WORK, DELIVER COMPLETED PROJECT RECORD DOCUMENTS MARKED WITH FIELD CHANGES TO ARCHITECT/ENGINEER.

OPERATION AND MAINTENANCE DATA:
AT THE COMPLETION OF WORK, SUBMIT (3) TYPED AND HARD-BOUND COPIES OF AN OPERATING AND MAINTENANCE MANUAL TO THE ARCHITECT/ENGINEER FOR APPROVAL BEFORE SCHEDULING ANY SYSTEM DEMONSTRATION FOR THE OWNER.

WARRANTIES:
PROVIDE A WRITTEN WARRANTY TO THE OWNER COVERING THE ENTIRE ELECTRICAL WORK TO BE FREE FROM DEFECTIVE MATERIALS, EQUIPMENT AND WORKMANSHIP FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE.

CLEAN-UP AND CLOSE-OUT:
KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH CAUSED BY THIS CONTRACTOR'S WORK OR HIS EMPLOYEES.

UPON COMPLETION OF WORK, REMOVE MATERIALS, SCRAPS AND DEBRIS RELATIVE TO THIS CONTRACTOR'S WORK AND LEAVE THE PREMISES, INCLUDING CRAWL SPACES AND CHASES, IN CLEAN AND ORDERLY CONDITION.

CLEAN EXPOSED SURFACES OF LIGHT FIXTURES, DISTRIBUTION BOARDS, PANELS AND OTHER EXPOSED ITEMS OF GREASE, DIRT OR OTHER FOREIGN MATERIAL. REMOVE RUBBISH AND DEBRIS RESULTING FROM THE OPERATIONS OF THIS CONTRACTOR AND LEAVE SPACES CLEAN AND READY FOR USE.

BASIC MATERIALS AND METHODS

COREDRILLING AND SAWCUTTING:
PROVIDE ALL COREDRILLING AND SAWCUTTING REQUIRED BY THE WORK IN THIS DIVISION. FIRE AND SMOKE SEAL ALL PENETRATIONS TO MAINTAIN RATINGS OF ALL AREA SEPARATIONS. PATCH AND PREPARE SURFACE TO RECEIVE NEW FINISH WHERE SPECIFIED BY THE ARCHITECT. FINISH SURFACE TO MATCH SURROUNDING SURFACE FINISHES, AS SPECIFIED.

SEALING:
MAINTAIN ALL CEILING, FLOOR AND WALL PROTECTION RATINGS FOR FIRE AND SMOKE. SEAL ALL CONDUIT AND ENCLOSURE PENETRATIONS TO COMPLY WITH UL ASSEMBLY AND BUILDING CODE REQUIREMENTS. ALL SEALANTS AND CONSTRUCTIONS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO APPLICATION. ALL OPENINGS SHALL BE SEALED DAILY.

RACEWAYS:
RACEWAYS SHALL BE CONCEALED AND APPROVED FOR USE AND LOCATION.
DRY LOCATIONS – GRC, IMC, EMT.
FLEXIBLE CONDUIT – GALVANIZED STEEL, LIQUIDTIGHT.

JUNCTION AND PULL BOXES: SIZE PER THE NEC.
DRY LOCATIONS – STEEL WITH COVERS.
WET LOCATIONS – CAST ALUMINUM.

COUPLINGS AND CONNECTORS:
GRC – THREADED
IMC – THREADED
EMT – COMPRESSION
PVC – CEMENT
JOINT TYPE. INDENTER TYPE CONNECTORS PROHIBITED.

MC CABLE MAY BE USED IN WALLS FROM DEVICE TO DEVICE & UP TO A J-BOX ABOVE LAY-IN CEILING. ALL HOME RUNS TO PANELS ARE TO BE IN CONDUIT.

WIRING DEVICES AND PLATES:

DUPLEX OUTLETS – HUBBELL – HBL5362X SERIES, 120VAC, 20 AMP
(CR SERIES IS NOT ACCEPTABLE)
GFCI OUTLETS – HUBBELL – GF20X SERIES, 120VAC, 20 AMP
AC SWITCHES – HUBBELL – HBL1221X SERIES, 120VAC, 20 AMP
(CR SERIES IS NOT ACCEPTABLE)
DEVICE COLOR – IVORY (VERIFY WITH ARCHITECT)
PLATES – IVORY NON-BREAKABLE NYLON (VERIFY WITH ARCHITECT)

ALL RATINGS SHALL MATCH BRANCH CIRCUIT AND LOAD CHARACTERISTICS.
ALL 15 AND 20 AMP RECPT. IN KITCHEN TO BE GFI PROTECTED PER NEC.

WIRE:
COPPER ONLY WITH THHN/THWN TYPE INSULATION IN RACEWAY. NO ALUMINUM CONDUCTORS ALLOWED WITHOUT PRIOR APPROVAL FROM THE ENGINEER. UL LISTED LUGS AND CONNECTORS, NEC APPROVED COLOR CODING. ALL WIRE SHALL HAVE AN INSULATION VOLTAGE RATING OF 600 VOLTS, AND AN INSULATION TEMPERATURE RATING OF 75 DEGREES C.

WIRE COLORS: BLACK, RED, AND BLUE FOR CIRCUITS AT 120/208V, SINGLE OR THREE PHASE.

SUPPORTS AND HANGERS:
SUPPORTS AND HANGERS MUST BE UL LISTED AND APPROVED BY LOCAL INSPECTORS.

ANCHORS:
HOLLOW MASONRY – TOGGLE BOLT.
SOLID MASONRY – EXPANSION BOLT.
METAL – MACHINE SCREWS, BOLTS, WELDING.
WOOD – WOOD SCREWS.

GROUNDING:
IN STRICT ACCORDANCE WITH THE NEC AND UTILITY COMPANY REGULATIONS. PROVIDE COPPER EQUIPMENT GROUNDING CONDUCTOR IN ALL RACEWAYS.

PERMANENTLY ATTACH EQUIPMENT AND GROUNDING CONDUCTORS PRIOR TO ENERGIZING EQUIPMENT.

NAMEPLATES:
PROVIDE ON ALL PANELS, DISCONNECTS AND EQUIPMENT. NAMEPLATES SHALL HAVE 3/16" HIGH LETTERS ENGRAVED WITH CONTRASTING COLOR FILL. DEVICE PLATE ENGRAVING SHALL BE 1/8" HIGH LETTERS WITH CONTRASTING COLOR FILL.

LIGHT FIXTURES:
PROVIDE NEW LIGHT FIXTURES AS SCHEDULED COMPLETE WITH TRIMS, LAMPS, FUSES, GASKETS, BALLASTS, OPTIONS, ACCESSORIES, ETC. AS SCHEDULED.

SUPPORT LIGHT FIXTURES INDEPENDENT OF CEILING FRAMING. CONNECT LIGHT FIXTURES TO BRANCH CIRCUITS, AS INDICATED.

MECHANICAL EQUIPMENT:
SEE PLANS FOR CONNECTION OF MECHANICAL EQUIPMENT. PROVIDE FLEXIBLE CONDUIT (WITH EQUIPMENT GROUND CONDUCTOR) CONNECTION AT ALL MOTORS.

ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT REQUIRING ELECTRICAL CONNECTION WITH MECHANICAL CONTRACTOR. ALSO, ELECTRICAL CONTRACTOR SHALL OBTAIN MECHANICAL SUBMITTALS TO COORDINATE DISCONNECT MEANS, SPECIFICATIONS, AND VOLTAGE REQUIREMENTS PRIOR TO ROUGH-IN. VERIFY REQUIREMENTS FOR EACH UNIT WHEN DELIVERED TO SITE. IF DISCREPANCIES OCCUR, NOTIFY THE ELECTRICAL ENGINEER AND ARCHITECT IMMEDIATELY.

ELECTRICAL CONTRACTOR IS TO REVIEW AND COORDINATE WITH MECHANICAL AND PLUMBING DRAWINGS, INCLUDING ALL EQUIPMENT SCHEDULES TO ENSURE THAT ALL CONNECTIONS FOR THEIR EQUIPMENT ARE PROVIDED. DEVICE LOCATIONS ARE TO BE COORDINATED WITH THE APPROPRIATE CONTRACTOR PRIOR TO COMMENCEMENT OF WORK OR ELECTRICAL ROUGH-INS.

ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH MECHANICAL CONTRACTOR TO PROVIDE 120V POWER, IF NEEDED, TO ACCOMMODATE ANY LOW VOLTAGE REQUIREMENTS THAT MECHANICAL EQUIPMENT MAY HAVE.

INSTALL DISCONNECT SWITCHES, CONTROLLERS, ETC, TO COMPLETE ALL EQUIPMENT WIRING REQUIREMENTS.

DRAWINGS AND MEASUREMENTS:
CONTRACT DRAWINGS FOR ELECTRICAL WORK ARE IN PART DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, CONDUITS AND APPROXIMATE SIZES AND LOCATIONS OF EQUIPMENT AND OUTLETS. ELECTRICAL TRADES SHALL FOLLOW THESE DRAWINGS IN LAYING OUT THEIR WORK, CONSULT GENERAL CONSTRUCTION DRAWINGS TO FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THEIR WORK, AND SHALL VERIFY SPACES IN WHICH THEIR WORK WILL BE INSTALLED. COORDINATE WORK WITH OTHER TRADES AS JOB CONDITIONS REASONABLY REQUIRE.

WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES IN INDICATED LOCATIONS AND ARRANGEMENT, MAKE SUCH CHANGES WITHOUT EXTRA COST TO OWNER.

THE DRAWINGS ARE NOT INTENDED TO BE SCALED FOR ROUGH-IN MEASUREMENTS AND ARE NOT TO SERVE AS SHOP DRAWINGS.

ALL RACEWAYS SHALL BE CONCEALED IN FINISHED SPACES UNLESS NOTED OTHERWISE. SURFACE-MOUNTED RACEWAYS (WIREMOLD) SHALL BE LIMITED IN USE AND ONLY PERMITTED WHERE DIRECTED. RACEWAYS IN NON-FINISHED SPACES, SUCH AS MECHANICAL ROOMS AND CRAWL SPACES, SHALL BE PERMITTED TO BE EXPOSED. ALL EXPOSED RACEWAYS SHALL BE ROUTED PLUMB AND SQUARE TO BUILDING SURFACES. RACEWAYS IN NON-FINISHED SPACES SHALL BE INSTALLED SUCH THAT MAJOR RELOCATION IS NOT REQUIRED WHEN CEILINGS AND WALLS ARE INSTALLED IN THE FUTURE.

OWNER SUPPLIED EQUIPMENT:
COORDINATE ELECTRICAL CONNECTIONS FOR OWNER-SUPPLIED EQUIPMENT WITH OWNER, MANUFACTURER DATA, AND EQUIPMENT NAMEPLATE INFORMATION.

SUBSTITUTIONS:
ALL SUBSTITUTIONS TO BE APPROVED BY OWNER, ARCHITECT AND ENGINEER.

INSTALLATION:
INSTALL WORK IN ACCORDANCE WITH STATE AND LOCAL STANDARDS.

RACEWAY ROUTING, WHEN SHOWN, IS IN APPROXIMATE LOCATIONS. FIELD COORDINATE ROUTING.

CUT CONDUIT SQUARE USING SAW OR PIPE CUTTER; DEBURR CUT ENDS.

INSTALL SUITABLE PULLSTRING OR CORD IN EACH EMPTY RACEWAY. INSTALL SUITABLE CAPS TO PROTECT INSTALLED CONDUIT AGAINST ENTRANCE OF DIRT AND MOISTURE.

INSTALL FITTINGS TO ACCOMMODATE EXPANSION AND DEFLECTION WHERE RACEWAY CROSSES CONTROL AND EXPANSION JOINTS.

ELECTRICAL LEGEND

- BRANCH CIRCUIT CONCEALED IN WALL OR CEILING
- BRANCH CIRCUIT CONCEALED IN OR UNDER FLOOR
- HOME RUN TO PANEL. NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS
- NUMBER OF HASHMARKS INDICATES NUMBER OF CONDUCTORS. NO HASHMARKS INDICATES TWO CONDUCTORS.
- LED LIGHT FIXTURE (WALL OR CEILING MOUNT)
- LED LIGHT FIXTURE (RECESSED)
- EMERGENCY EXIT LIGHT
- EMERGENCY LIGHTING
- DUPLEX CONVENIENCE RECEPTACLE – GROUNDED TYPE
- QUAD OUTLET
- TELEPHONE/DATA OUTLET
- SPECIAL EQUIPMENT OUTLET AS NOTED
- J — JUNCTION BOX OR J-BOX
- S — SWITCH
- S_D — SWITCH-DIMMER
- NOTE DESIGNATION
- MECHANICAL EQUIPMENT UNIT INDENTIFICATION
- EX — EXISTING DEVICE TO REMAIN IN USE
- OCCUPANCY SENSOR-WATT STOPPER DT-355

ELECTRICAL ABBREVIATIONS LIST

AMP	AMPHERE	PNL	PANELBOARD
AC	ALTERNATING CURRENT	PHN	PHONE
AFC	ABOVE FINISHED COUNTERTOP	PR	PRINTER
AFF	ABOVE FINISHED FLOOR	PRI	PRIMARY
AWG	AMERICAN WIRE GAUGE	RECPT	RECEPTACLE
BKR	BREAKER	RM	ROOM
BLDG	BUILDING	SCHED	SCHEDULE
CD	CIRCUIT BREAKER	SEC	SECONDARY
C	CONDUIT	SHT	SHEET
CLG	CEILING	SPD	SURGE PROTECTIVE DEVICE
IT	DATA COMMUNICATIONS ROOM	SPEC	SPECIFICATIONS
DIA	DIAMETER	SWBD	SWITCHBOARD
DISC	DISCONNECT	TVSS	TRANSIENT VOLTAGE SURE SUPRESSOR
DWG	DRAWING	TYP	TYPICAL
EC	ELECTRICAL CONTRACTOR	UNO	UNLESS NOTED OTHERWISE
ELEC	ELECTRICAL	V/D	VOICE/DATA
EQUIP	EQUIPMENT	V	VOLT. VOLTAGE
EX	EXISTING	VA	VOLT AMPHERES
EG	EQUIPMENT GROUND	VC	VIDEO CAMERA
EMT	ELECTRICAL METALLIC TUBING	WP	WATER PROOF
EWC	ELECTRIC WATER COOLER	WS	WR WATER RESISTANT
GC	GENERAL CONTRACTOR	WS	WORK STATION
GRD	GROUND	XFMR	TRANSFORMER
GFI	GROUND FAULT INTERRUPTING	#	NUMBER
IG	ISOLATED GROUND		
KVA	KILOVOLT AMPHERE		
KW	KILOWATT		
LAN	LOCAL AREA NETWORK		
MCB	MAIN CIRCUIT BREAKER		
MLO	MAIN LUGS ONLY		
MM	MILLIMETERS		
NA	NOT APPLICABLE		
NEC	NATIONAL ELECTRICAL CODE		
NEMA	NATIONAL ELECTRICAL		
NTS	NOT TO SCALE		
P	POLE		
PH	PHASE		

MOUNTING HEIGHTS

DESCRIPTION	HEIGHT	
THERMOSTAT, SPEED CONTROL	MATCH EXISTING	
WALL SWITCH	42" TO CENTER	MATCH EXISTING
CONVENIENCE OUTLET	18" TO CENTER	MATCH EXISTING
TELEPHONE OUTLET	16"	MATCH EXISTING
SECURITY ACCESS CONTROL	42"	
DOOR BUZZER PUSHBUTTON	42"	
FIRE ALARM MANUAL STATION	42"	
FIRE ALARM HORN/STROBE	12" BELOW CEILING (AS LONG AS 80"-96" A.F.F.)	
FIRE ALARM HORN	90" A.F.F.-6" BELOW CEILING	
EXIT SIGN	CENTER, 12" ABOVE DOOR	

MOUNTING HEIGHTS TO BOTTOM OF BOX AND ABOVE FINISHED FLOOR GRADE UNLESS NOTED OTHERWISE.

GENERAL DEMOLITION NOTES:

1. THE EXISTING BUILDING WILL BE OCCUPIED DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN SERVICES TO THE EXISTING ELECTRICAL INSTALLATION, AS NEEDED. ALL WORK, POWER OUTAGES, ETC. SHALL BE COORDINATED WITH THE OWNER.
2. REMOVE ALL WIRE BACK TO ITS SOURCE WHEREVER EXISTING CIRCUITS ARE ABANDONED. REMOVE ABANDONED RACEWAY AND BOXES, UNLESS CONCEALED IN CONCRETE OR MASONRY CONSTRUCTION.
3. REMOVE ALL ABANDONED ELECTRICAL EQUIPMENT AND RETURN TO THE OWNER AS DIRECTED. ALL ABANDONED EQUIPMENT REMAINS THE PROPERTY OF THE OWNER. ITEMS WHICH THE OWNER DOES NOT CHOOSE TO RETAIN SHALL BE REMOVED BY THE CONTRACTOR FROM THE BUILDING AND DISPOSED OF IN AN APPROVED AND LEGAL MANNER.
4. REINSTALL EXISTING ELECTRICAL INSTALLATIONS DISTURBED. CERTAIN EXISTING ELECTRICAL INSTALLATIONS MAY BE LOCATED IN WALLS, CEILINGS OR FLOORS THAT ARE TO BE REMOVED AND ARE ESSENTIAL FOR THE OPERATION OF OTHER REMAINING INSTALLATION. WHERE THIS CONDITION OCCURS, PROVIDE A NEW EXTENSION OF THE ORIGINAL CIRCUITS, RACEWAYS, EQUIPMENT AND OUTLETS TO RETAIN SERVICE CONTINUITY. INSTALLATIONS SHALL BE CONCEALED IN FINISHED AREA.
5. REMOVE LIGHTING FIXTURES LOCATED IN AREAS WHERE CEILINGS OR WALLS ARE TO BE REPLACED, AND REINSTALL FIXTURES UNLESS NEW FIXTURES ARE INDICATED. REFER TO ARCHITECTURAL PLANS FOR WHICH AREAS ARE TO HAVE THE CEILING REPLACED, AND FOR NEW FLOOR PLAN.
6. ALL MATERIALS AND EQUIPMENT WHICH ARE NOTED, OR REQUIRED BY THE OWNER TO BE SALVAGED AND WHICH ARE NOT SCHEDULED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY REMOVED AND SHALL BE DELIVERED TO THE OWNER, OR THEIR REPRESENTATIVE, AND STORED WHERE DIRECTED ON SITE.
7. CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ON SITE ALL MATERIAL AND EQUIPMENT NOTED OR SPECIFIED TO BE REUSED OR RELOCATED, AND THOROUGHLY CLEAN THIS EQUIPMENT PRIOR TO RE-INSTALLATION.
8. EPA REGULATIONS REQUIRE CONTROLLED DISPOSAL OF FLUORESCENT LIGHTING BALLASTS CONTAINING PCBs WHEN REMOVED FROM SERVICE. THE BALLASTS INVOLVED WERE GENERALLY MANUFACTURED BETWEEN 1950 AND 1979. CONTRACTOR'S DISPOSAL OF PCB CONTAINING BALLASTS SHALL COMPLY WITH EPA REQUIREMENTS.
9. ALL EXISTING NON-METALLIC WIRING IS TO BE REMOVED AND REPLACED WITH NEW CONDUCTORS IN METALLIC RACEWAYS. MATCH EXISTING CONDUCTOR SIZES AND SIZE NEW RACEWAYS FOR 40% MAX. FILL PER NEC.
10. SEE ARCHITECTURAL AND MECHANICAL PLANS FOR RELATED DEMOLITION REQUIREMENTS.

SPARK ARCHITECTURE
410 Central Ave
GREAT FALLS, MT 59401
T: 406.453.0001
F: 406.760.1788
SPARK-ARCHITECTURE.COM

H.O. EVERSON

CMR WILDLIFE CENTER
MEETING ROOM REMODEL
333 AIRPORT RD
LEWISTOWN, MT 59457

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ELECTRICAL REQUIREMENTS

E100

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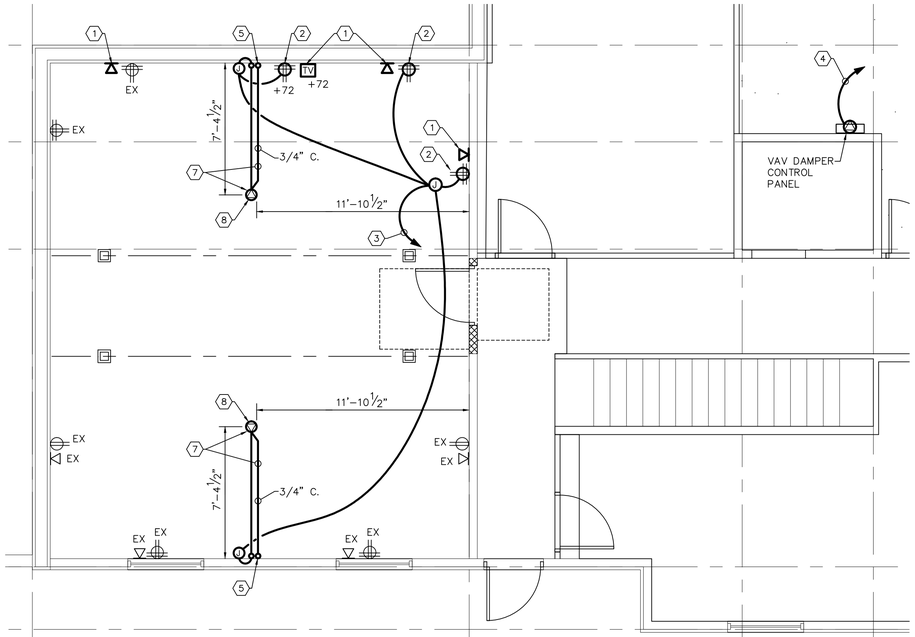
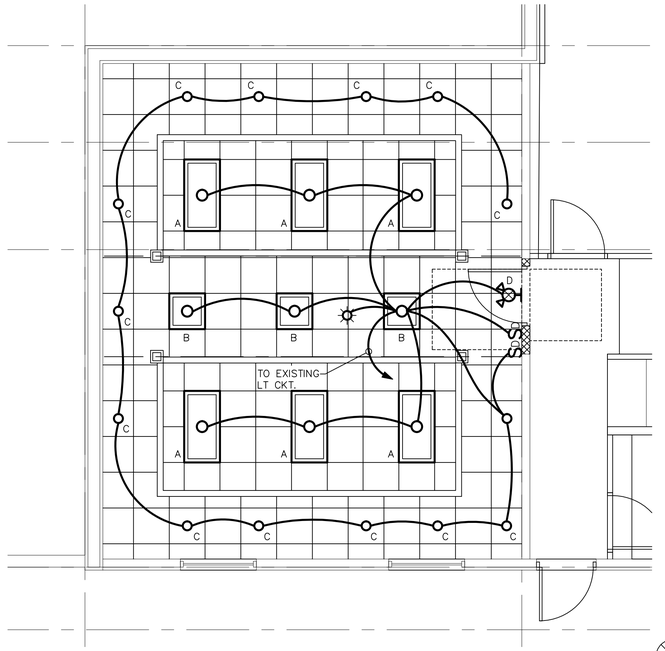
SPECIFIC NOTES THIS PLAN

1. PROVIDE A SURFACE WIREMOLD BOX EXTEND SURFACE WIREMOLD #500 UP TO ABOVE LAY–IN CEILING.
2. PROVIDE A TWO GANG SURFACE MOUNT WIRE MOLD BOX WITH TWO 15A DUPLEX RECEPTACLES EXTEND CIRCUIT TO J–BOX ABOVE CEILING IN SURFACE WIREMOLD #500.
3. TO EXISTING RECEPTACLE CIRCUIT THIS AREA.
4. TO NEW 20A–1P BREAKER IN EXISTING PANEL.
5. ADAPT 3/4" C. TO #500 WIREMOLD @ FLOOR. EXTEND WIREMOLD UP WALL TO ABOVE LAY–IN CEILING.
6. ADAPT 3/4" C. TO #500 WIREMOLD @ FLOOR. EXTEND 3 #12 THW IN WIREMOLD TO J–BOX ABOVE LAY–IN CEILING.
7. SAW CUT CONCRETE FLOOR AS REQUIRED FOR INSTALLATION OF FLOOR BOX & CONDUITS.
8. PROVIDE A STEEL CITY 665 SERIES FLUSH FLOOR BOX OR APPROVED EQUAL. SEE 4/E101



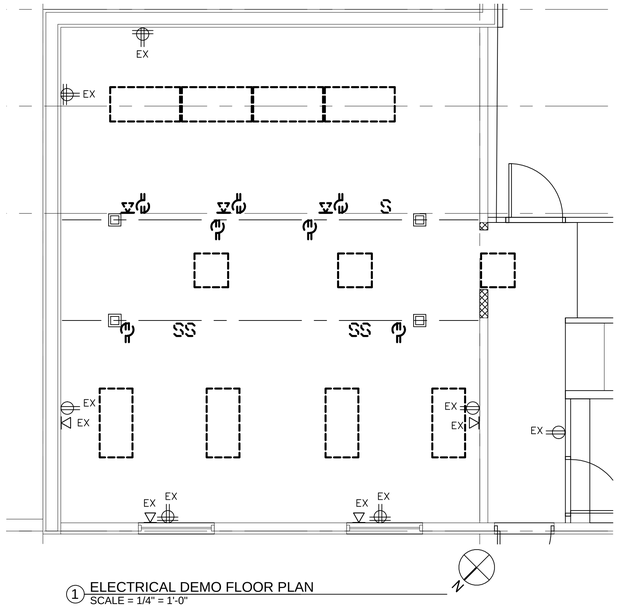
2 POWER & SPECIAL SYSTEMS FLOOR PLAN
SCALE = 1/4" = 1'-0"



3 LIGHTING FLOOR PLAN
SCALE = 1/4" = 1'-0"

LIGHT FIXTURE SCHEDULE

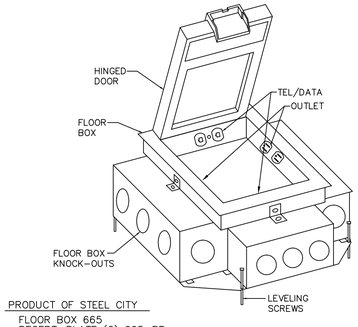
LETTER DESIG.	FIXTURE				LAMP		NOTES
	MANUFACTURER	CATALOG NO.	LOCATION	TYPE	TYPE	NO.	
A	LSI	SFP24LED50UEDIM35	CEILING	RECESSED	50W LED	–	
B	LSI	SFP22LED30UEDIM35	CEILING	RECESSED	30W LED	–	
C	NORA	NLOS–R42L35WW	CEILING	SURFACE	11W LED	–	
D	MULE	SQC–LED–1–R–WW	WALL	SURFACE	LED	–	



1 ELECTRICAL DEMO FLOOR PLAN
SCALE = 1/4" = 1'-0"

ELECTRICAL DEMOLITION NOTES:

1. WHEREVER EXISTING EQUIPMENT IS BEING REMOVED OR RELOCATED, CIRCUITS SHALL BE EXTENDED, TERMINATED, OR REROUTED AS REQUIRED TO MAINTAIN SERVICE TO EQUIPMENT AND DEVICES REMAINING.
2. ELECTRICAL DEVICES SHOWN LIGHT AND SOLID ARE EXISTING TO REMAIN. DEVICES SHOWN HEAVY AND DASHED ARE EXISTING TO BE RELOCATED OR REMOVED.
3. OUTLETS, FIXTURES, SWITCHES, OR OTHER DEVICES BEING REMOVED SHALL HAVE BLANK COVER PLATES INSTALLED WHERE IT IS NOT PROTICOL TO REMOVE BOX.
4. THE CONTRACTOR SHALL BE COGNIZANT THAT THIS IS A REMODELING PROJECT AND AS SUCH, CERTAIN ITEMS CANNOT BE FULLY ILLUSTRATED NOR EXPLAINED WITHOUT FIELD OBSERVATION. THEREFORE, THE CONTRACTOR SHALL VISIT AND EXAMINE THE SITE AND BUILDING IN EVERY DETAIL AS PERTAINS TO THIS PROJECT AND MAKE ALLOWANCES IN HIS PROPOSAL FOR ALL CONDITIONS THAT WILL AFFECT THE WORK INDICATED IN THE PROJECT MANUAL AND CONTRACT DOCUMENTS.
5. PLANS SHOW MAJOR COMPONENTS OF DEMOLITION. COMPLETELY DEMOLISH ALL ITEMS EXISTING WHICH ARE NOT REUSED IN THE NEW CONSTRUCTION WHETHER INDICATED OR NOT. THE INTENT IS TO HAVE ALL NON–USED ITEMS AND EQUIPMENT COMPLETELY REMOVED AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.



PRODUCT OF STEEL CITY
FLOOR BOX 665
RECEPT. PLATE (2) 665–RP
RECEPT. (2) NEMA 5–20R
TEL/DATA PLATE (1) 665–EP
BLANK PLATE (1) 665–BP
COVER 665–CST

4 FLOOR OUTLET
NTS

Spark
ARCHITECTURE
410 Central Ave
GREAT FALLS, MT 59401
T: 406.453.0001
F: 406.760.1788
SPARK-ARCHITECTURE.COM

LICENSED ENGINEER H.O. EVERSON 4558 STATE OF MONTANA

CMR WILDLIFE CENTER
MEETING ROOM REMODEL
333 AIRPORT RD
LEWISTOWN, MT 59457

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